

## MEDICAL PRACTICE

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*Autumn Books*

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**Thoughts, theories, and facts**

CHRISTOPHER BOOTH

Philosophy is almost as old as civilisation itself. Thales of Miletus, generally considered to be the first of the pre-Socratic philosophers, attempted a purely natural explanation of the origins of the world as early as the first half of the sixth century BC. Philosophy has come through the ages to reflect on virtually all of human experience, and it was out of philosophy that the methods of modern science were conceived. Men have turned to philosophy from as wide an area of different concerns and disciplines as the manifold experiences of man have encouraged. Some, like Plato, Thomas Hobbes, and John Locke, were inspired by the political problems of society, and others—for example, Pythagoras or, in our own era, Bertrand Russell—by mathematics. In the post-Christian period there were philosophers such as Thomas Aquinas and Bishop Berkeley who saw their duty to be the assertion of the truths of religion. Ethics, morality, logic, and linguistics have all been the concern of philosophers. An interest in the physical composition of the natural world, a feature of Thales philosophy, formed an important part of the philosophy of Aristotle and was later to be the main interest of the work of Sir Francis Bacon, the most outstanding of the proponents of Renaissance empiricism. For Bacon, knowledge concerned history, which depended on memory; poetry, which relied on the imagination; and philosophy, which called into play man's reason.

Sir Harold Himsworth, a much respected medical scientist, took up philosophy after a highly successful career as research worker, clinician, teacher, and influential secretary of the Medical Research Council for nearly 20 years. A fellow of the Royal Society as well as the recipient of many other honours, he is an unashamed protagonist of the scientific methods so well formulated by Sir Francis Bacon. In this short book he starts with a categorisation of human knowledge as scientific, theological, or philosophical and quotes Bertrand Russell, who held that philosophy was a no man's land occupying the territory between the dogmas of theology on the one hand and the definitive knowledge of science on the other.

The first two chapters are on methods of thought and on experience and understanding. In a third chapter, dealing with observations and hypotheses, Sir Harold seeks to refute Popper's view that "observation is always selective" and that "the belief that



Portrait of Sir Harold Himsworth by John Ward, R.A.  
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we can start with pure observation alone, without anything in the nature of a theory, is absurd." I am uncertain, however, whether the examples of chance favouring the prepared scientific mind that Sir Harold cites in his support will go far to persuade Popper to change his mind. Arguments on the nature of the particular and the general, and on possibility and certainty, follow. Imagination and credibility are briefly considered. There are then chapters that deal with inference, induction, and intuition and on properties and values. In

a final chapter on science and philosophy the author gives his answer to the questions he posed at the outset: "Are there two kinds of problem—the scientific and the philosophic—each of which requires a different method for its solution; or are there two different methods for solving a problem, and according to which we use, we shall get a different answer?" His conclusion that the difference between science and philosophy lies in methodology leads him inescapably to the affirmation that it is the scientific approach rather than the philosophical that has enabled man to make "substantial progress" towards mastering the problems of his material environment. This is an interpretation of history that is sincerely held by many scientists in this country and elsewhere. It is, however, a view that leads the scientist to overvalue his importance to society, for technology, a tradition in human society that is older than science, has arguably had a greater influence in improving man's environment through the ages. In the modern world technology and science march together, since each so obviously depends upon the other.

Sir Harold's view of philosophy, however, is strongly supported by the Nobel laureate James D Watson, who writes in a foreword to the work that "we must not automatically assume that because philosophers' arguments are increasingly subtle, they represent serious advances beyond the commonplace ideas about deduction and induction first formulated . . . by Francis Bacon. I, like Harold Himsworth, am uncomfortable with much of this unneeded complexity." There may well be many, like myself, who would not so peremptorily dismiss the work of modern schools of scientific philosophy.

In contrast to man's scientific achievements, Sir Harold expresses his disappointment at how little man has done to master the problems that he, and by inference society, has created for himself. It is, however, worth reflecting that it is in these very areas of man's social activities that Western philosophy has had, for many of us

who live in Western Europe and the United States, more than a limited amount of success. It has been the concern of Western philosophers with ethics, society, morality, and political thought that has brought about in the Western democracies that very freedom that has been essential to the development of modern science and for the expression of new ideas. This has been particularly true in the United States, where, to paraphrase Tocqueville, the new republic gave people the opportunity of trying to give reality to what European philosophers had dreamed of for centuries.

Sir Harold concludes with a tribute to the Royal Society of London, founded by an enlightened monarch whose tutor in early life, Thomas Hobbes, had known both Galileo and Francis Bacon. It was no accident, he points out, that the founding fathers took for their motto the words "Nullius in verba," implicitly a rejection of scholasticism and authority. The results, he tells us, are there for all to see.

As Robert Glaser records on the book jacket, which also carries tributes from Lord Dainton and Paul Beeson, Sir Harold "uses language beautifully," which would have pleased the philosopher John Locke, whose *Essay Concerning Human Understanding* contains one of the earliest pleas for the accurate use of words and language. Watson, however, refers in his foreword to the "urban civility of Himsworth's thought"; did he not really mean urbane? The book is well produced and a pleasure both to handle and to read. It will undoubtedly stimulate an interest in science and philosophical thought in those who read it, as it did in me, and I have no hesitation in recommending it.

*Scientific Knowledge and Philosophic Thought.* H Himsworth. (Pp 128; £10.20.) Baltimore: The Johns Hopkins University Press, 1986. ISBN 0-8018-3316-7.

## Look before you quote

KAY DICKERSIN, PEG HEWITT

The medical literature has lately reflected increased attention to issues of quality of research. These issues have included study design and operation,<sup>1,2</sup> the correct use of statistical procedures,<sup>3,4</sup> the reporting of study design and results,<sup>5</sup> and peer review.<sup>6</sup> Recent articles have reported the use of inaccurate quotations and references in medical journals<sup>7,8</sup> and discussed the possible consequences. A recent study has suggested that in some cases the problem may be more insidious in that textbooks may systematically misquote previous references; and in the light of this we discuss steps taken by the National Library of Medicine to prevent continued transmission of original errors.

Diane Paul has recently reviewed 28 of the 31 introductory genetics textbooks published from January 1978 to March 1984.<sup>9</sup> She found that of the 19 that included substantial discussions on the heritability of human intelligence most reported that heritability of intelligence quotient (IQ) is high and offered specific estimates of the proportion of IQ that is inherited. In attempting to trace the origin of these statistics, Paul found that the authors of these textbooks often failed to give a source or gave a misleading citation that referred to a secondary source reporting on earlier work. When a study showing evidence for inheritability of intelligence was actually cited by the textbooks it was most often a report written by Erlenmeyer-Kimling and Jarvik in 1963.<sup>10</sup> This article (which might be termed a meta-analysis today) reviewed the results of 52 different kinship studies. As well as having methodological flaws, the review actually identified only four of the supposed 52 studies. One of the

four identified studies was authored by "J Conway," a pseudonym for Sir Cyril Burt, and contained fabricated data. (Sir Cyril Burt's data fabrication was exposed in the late 1970s, yet those in peripherally related fields may not, it seems, be aware of the past scandal and current disregard for his research.)

Thus for a number of good reasons the Erlenmeyer-Kimling and Jarvik paper is considered to be outdated by the scientific community. Yet of the 19 genetics textbooks that discussed the heritability of intelligence 11 cited this review and 10 of these displayed its summary figure. Paul concluded that textbook authors copy from one another, thus propagating invalid hypotheses. Similar examples of propagation of inaccurate or distorted information through textbooks have been described by others.<sup>11,12</sup>

How are these results important to the issue of accurate quotations in the medical literature? Firstly, some textbooks appear not to cite reported work or cite only a secondary source. Secondly, cited articles may be based on falsified data, which may go unrecognised as such by the reviewing authors. The first of these problems was well covered by deLacey *et al*, and clearly improvement is possible. The second problem, that of authors possibly relying on retracted data, is less easy to solve now, but it will be possible in the future.

In 1983 Altman and Melcher wrote in this journal: "There are no mechanisms built into the scientific process to record data about the frequency of fraud. *Index Medicus* contains no headings listing frauds or correcting false information."<sup>13</sup> In 1984 the National Library of Medicine introduced a medical subject heading (MeSH)